



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,033	01/23/2008	Yoshikiyo Tanaka	80655(47762)	1157

21874 7590 09/08/2009
EDWARDS ANGELL PALMER & DODGE LLP
P.O. BOX 55874
BOSTON, MA 02205

EXAMINER

WU, SHEAN CHIU

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/08/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,033

Applicant(s)

TANAKA ET AL.

Examiner

Shean C. Wu

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/22/05 and 11/30/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-8 and 10-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1-3, the formulae (IIA-1), (IIA-3), (IIA-5), (IIB-1), (IIB-3), (IIB-5), (IIC-3), (IIC-7), (IIC-9) and (IIC-10) are not defined and formulae (IA-2), (IA-4), (IB-2) and (IB-4) are not specified in liquid crystal composition of claims 1-3. It is noted that formulae (IA-2) and (IA-4) are encompassed by formula (IA). Also, formulae (IB-2) and (IB-4) are encompassed by formula (IB) (see claims 4, 15 and 16). Therefore, formulae (IA-2), (IA-4), (IB-2) and (IB-4) should be removed from claims 1-3 and formulae (IA-1), (IA-3), (IB-1) and (IB-3) should be removed from claims 4, 15 and 16.

In claims 5, 17 and 18, the formulae (IIA-1), (IIA-3), (IIA-5), (IIB-1), (IIB-3) and (IIB-5) should be moved to claims 1-3.

In claims 6 and 19, the formulae (IIC-3), (IIC-7), (IIC-9) and (II-10) should be moved to claims 1-3.

Claim 4, 7-8, 10-14 and 20-21 are rejected because they are dependent claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1795

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

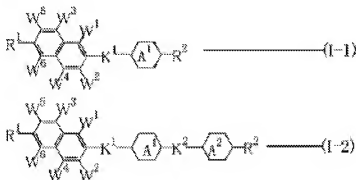
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

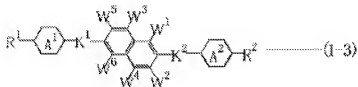
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 8, 10-19 and 21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2001-40354.

The reference discloses a nematic liquid crystal composition contains liquid crystal component A consisting of at least one compound of formulae (II)-(I3), liquid crystal component B consisting of a compounds of formulae (II-1)-(II5) with a dielectric constant anisotropy greater than or equal to 2 and liquid crystal component C consisting of a compounds of formulae (III-1)-(III-4) with a dielectric constant anisotropy of -10 to 2 (see below).





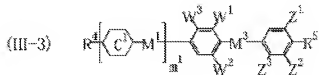
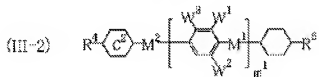
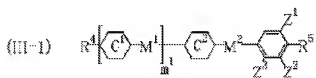
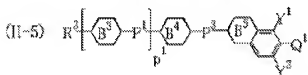
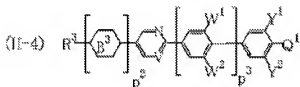
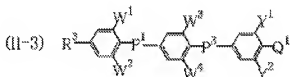
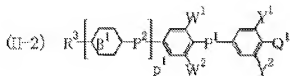
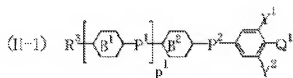
wherein, $R^1, R^2 = 1-10C$ alkyl or alkoxy or 2-10C alkenyl or alkenyloxy all optionally substituted by at least one F, Cl, CN, CH_3 or CF_3 with at least one CH_2 not directly bonding to O mutually in the alkyl, alkoxy, alkenyl or alkenyloxy is optionally substituted by O, CO or COO;

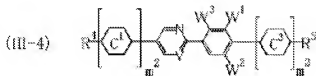
$W^{1-6} = H, F, Cl, CF_3, OCF_3$ or CN;

$K^1, K^2 =$ single bond, $-COO-$, $-OCO-$, $-CH_2O-$, $-OCH_2-$, $-CH=CH-$, $-CF=CF-$, $-C\equiv C-$, $-(CH_2)_2-$, $-(CH_2)_4-$, $-CH=CH-(CH_2)_2-$, $-(CH_2)_2-CH=CH-$, $-CH=N-$, $-CH=N-N=CH-$ or $-N(O)=N-$;

$A^{1,2} = 1,4$ -phenylene, 2- or 3-fluoro-1,4-phenylene, 2,3-difluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, 2- or 3-chloro-1,4-phenylene, 2,3-dichloro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, pyrimidine-2,5-diyl, trans-1,4-cyclohexylene, trans-1,4-cyclohexenylenylene, trans-1,3-dioxane-2,5-diyl, trans-1-sila-1,4-cyclohexylene, trans-4-sila-1,4-cyclohexylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl or decahydronaphthalene-2,6-diyl; the naphthalene-2,6-diyl and 1,2,3,4-tetrahydronaphthalene-2,6-diyl optionally substituted by at least one F, Cl, CF_3 , OCF_3 or CH_3 (see [0025]-[0030]).

Art Unit: 1795





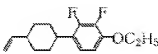
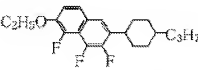
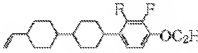

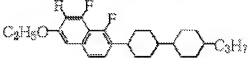
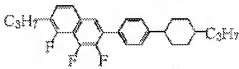



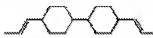
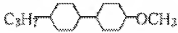

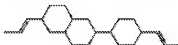
(see definition in sections [0017]-[0018], [0067]-[0079], [0119]-[0127] and [0283]-[0285]).

A nematic liquid crystal composition contains liquid crystal component A (5 to 100 wt.%) consisting of at least one compound of formula (1)-(3) and liquid crystal component B consisting of a compound(s) with a dielectric constant anisotropy greater than or equal to 2 (0-99.9 wt%) and liquid crystal component C consisting of a compound(s) with a dielectric constant anisotropy of -10 to 2 (0-98 wt%) with the total of liquid crystal components B and C (0-99.9 wt%) as liquid crystal components other than compounds of (I1)-(I3) (see [0023], [0043]-[0064], [0087]-[0117] and [0130]-[0157], particularly [0158]).

The nematic liquid crystal composition preferably has a dielectric constant anisotropy of -15 to -40, a birefringence of 0.02-0.40, a N-I phase transition temperature of 50-180 °C. The reference nematic liquid crystal compositions can give liquid crystal display devices with a widened operation temperature range, improved storage properties at a low temperature, a lowered drive voltage and improved temperature dependence of the drive voltage and a relatively high responsibility at a certain drive voltage and also be used for design of birefringence, dielectric constant anisotropy. The nematic liquid crystal compositions are useful as electro-optic display materials for active matrix,

twisted pneumatic, super twisted pneumatic, light scattering liquid crystal display devices. The reference example in [0192] comprises the compounds represented by the present formulae IA (1-0302, 10 wt%), IIA-1 (10 wt%), IIB (1-0305, 10 wt%), IIC (1-0301, 1-0307 and 1-0308, 15 wt%) and III (1-0309 to 1-0312, 35 wt%) as below:

Art Unit: 1795

(1-0301)		5重量%
(1-0302)		10重量%
(1-0303)		5重量%
(1-0304)		10重量%
(1-0305)		10重量%
(1-0306)		10重量%
(1-0307)		5重量%
(1-0308)		5重量%
(1-0309)		15重量%
(1-0310)		10重量%
(1-0311)		5重量%
(1-0312)		5重量%
(1-0313)		5重量%

Also, see example 19 in [0282]. The reference anticipates the claimed invention.

If not anticipated, it would have been obvious to those skilled in the art to take advantage

of the reference teachings by optimizing the disclosed compounds to arrive at the claimed invention.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C. Wu whose telephone number is 571-272-1393. The examiner can normally be reached on 10:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kelly Cynthia can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shean C Wu/
Primary Examiner, Art Unit 1795

scw